

Patent Claims

1. Method for controlling the handover of telecommunication connections in telecommunication systems with wireless telecommunication between mobile and/or stationary transmission/reception devices based on code-division and time-division multiplex, whereby

(a) carrier frequencies (FR1...FR12) predetermined for the telecommunication system are respectively divided such into a plurality of time slots (ZS'1...ZS'8) having a respectively predetermined time slot duration (T_{ZS}) that the telecommunication system can be operated in the TDD mode, whereby the time slots (ZS'1...ZS'8) per carrier frequency (FR1...FR2) respectively form a time-division multiplex frame (ZMR);

(b) at most a predetermined plurality of bidirectional telecommunication connections in upstream and downstream direction between the telecommunication subscribers of the mobile transmission/reception devices (MS1...MS5) and/or stationary transmission/reception devices (BTS1, BTS2) of the telecommunication can be simultaneously set up in the time slots (ZS'1...ZS'8) or, respectively, the frequency ranges of the telecommunication system, whereby subscriber signals thereby transmitted are operated for separability with pseudo-random signals (C1...C8), what are referred to as the codes, individually allocated to the subscribers;

(c) whereby a handover time slot pair is identified by a stationary transmission/reception device (BS) during a first phase of a handover procedure, the handover indication, characterized in that

(d) during a second phase of the handover procedure, the handover initiation,

(d1) the stationary transmission/reception device (BS) sends a first message "Handover Request" (M1) to mobile transmission/reception devices (MT1...MTn) allocated to the stationary transmission reception device (BS) with which the stationary transmission/reception device (BS) informs the mobile transmission/reception devices (MT1...MTn) of the handover time slot;

- (d2) the stationary transmission/reception device (BS) sends the first message "Handover Request" (M1) to the mobile transmission/reception devices (MT1...MTn) until all mobile transmission/reception devices (MT1...MTn) allocated to the stationary transmission/reception device (BS) have confirmed the initiation of the handover by the first message (M1);
- (d) the handover procedure is ended during a third phase of the handover procedure, the execution of a handover.

2. Method according to claim 1, characterized in that the first message (M1) is confirmed by a second message (M2).

3. Method according to claim 1, characterized in that the first message (M1) is confirmed in that the mobile transmission/reception devices (MT1...MTn) immediately transmit data to be transmitted in the handover time slot pair.

4. Method according to one of the claims, 1 through 3, characterized in that transmission path services fashioned as bearer services that are required in downstream and/or upstream direction in the telecommunication system are bundled in a code level erected by the codes (C1...C8).

5. Method according to claim 4, characterized in that least a part of logical channels of the telecommunication system -- for example, the control channel for signalling, the AGCH channel, the BCCH channel, the PCH channel, the RACH channel, the TCH channel and/or the FACCH channel -- is bundled in the code level as bearer services.

6. Method according to claim 4 or 5, characterized in that the bundling occurs in a first selection time slot (ZS'1) in downstream direction and in a second selection time slot (ZS'5) in upstream direction.

7. Method according to claim 6, characterized in that a first time slot (ZS'1) of the time slots (ZS'1...ZS'8) is allocated to the first selection time slot (ZS'1) and a fifth time slot (ZS'5) of the time slots (ZS'1...ZS'8) is allocated to the second selection time slot (ZS'5).

8. Method according to one of the claims 4 through 7, characterized in that a time slot pair, a downlink time slot (ZS'_{DOWN}) and an uplink time slot (ZS'_{UP}), is selected such in the TDD mode for each telecommunication connection that the

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spacing ($AS2...AS5$) between the downlink time slot (ZS'_{DOWN}) and the uplink time slot (ZS'_{UP}) that are allocated to the same carrier frequency ($FR1...FR12$) or different carrier frequencies ($FR1...FR12$) is a fraction of the length of a time-division multiplex frame (ZMR), whereby the spacing ($AS2...AS5$) is fixed or variable.

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